

WHAT IS CLAIMED IS:

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1. A magnetic recording medium comprising:  
a substrate;  
an underlayer formed on the substrate;  
a magnetic layer formed on the underlayer, wherein  
the magnetic layer comprising crystal grains having  
(a) an L1<sub>0</sub> structure mainly including Fe and Pt,  
and  
(b) 0.1 to 50 atomic percent of at least one  
10 element selected from the group consisting of Cu, Au,  
Zn, Sn, Pd and Mn; and  
a protective layer formed on the magnetic layer.
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2. The medium according to claim 1, wherein the  
substrate is a glass substrate.
3. The medium according to claim 1, wherein the  
crystal grain has a composition represented by the  
following formula:  
$$(\text{Fe}_{1-x}\text{Pt}_x)_{100-y}\text{M}_y$$
  
where x ranges from 0.4 to 0.6, y ranges from 0.1  
20 to 50, M is at least one element selected from the  
group consisting of Cu, Au, Zn, Sn, Pd and Mn.
4. The medium according to claim 3, wherein x  
ranges from 0.4 to 0.56, y ranges from 3 to 20.
5. The medium according to claim 1, wherein the  
25 magnetic layer has a thickness of 50 nm or less.
6. A magnetic recording medium comprising:  
a substrate;

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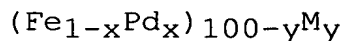
an underlayer formed on the substrate;  
a magnetic layer formed on the underlayer, wherein  
the magnetic layer comprising crystal grains having  
(a) an L1<sub>0</sub> structure mainly including Fe and Pd,  
and

(b) 0.1 to 50 atomic percent of at least one  
element selected from the group consisting of Cu, Au,  
Zn, Sn and Mn; and

a protective layer formed on the magnetic layer.

7. The medium according to claim 6, wherein the  
substrate is a glass substrate.

8. The medium according to claim 6, wherein the  
crystal grain has a composition represented by the  
following formula:



where x ranges from 0.4 to 0.6, y ranges from 0.1  
to 50, M is at least one element selected from the  
group consisting of Cu, Au, Zn, Sn and Mn.

9. The medium according to claim 8, wherein x  
ranges from 0.4 to 0.56, y ranges from 3 to 20.

10. The medium according to claim 6, wherein the  
magnetic layer has a thickness of 50 nm or less.

11. A magnetic recording medium comprising:

a substrate;

an underlayer formed on the substrate;

a magnetic layer formed on the underlayer, wherein  
the magnetic layer comprising crystal grains having

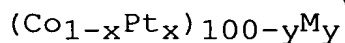
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(a) an L10 structure mainly including Co and Pt,  
and

(b) 0.1 to 50 atomic percent of at least one  
element selected from the group consisting of Ni, Au  
and Mn; and

a protective layer formed on the magnetic layer.

12. The medium according to claim 11, wherein the  
substrate is a glass substrate.

13. The medium according to claim 11, wherein the  
crystal grain has a composition represented by the  
following formula:



where x ranges from 0.4 to 0.6, y ranges from 0.1  
to 50, M is at least one element selected from the  
group consisting of Ni, Au and Mn.

14. The medium according to claim 13, wherein x  
ranges from 0.4 to 0.56, y ranges from 3 to 20.

15. The medium according to claim 11, wherein the  
magnetic layer has a thickness of 50 nm or less.

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